

Wind Energy Overview

Energy Efficiency - First Step in Alternative Energy

Energy efficiency is the first step in any viable plan designed to develop an energy resource such as wind, solar and biomass energy. Energy efficiency is the way to ensure that energy created from both traditional and alternative energy sources is not wasted. The Michigan Energy Office has a number of programs that can assist local communities enhance their energy efficiency as a first step in their energy resources development plans.

[ENERGY STAR Program](#) - ENERGY STAR is a national program that provides objective third-party verification that a product has high energy performance. ENERGY STAR rated buildings, for example, perform in the top 25% of buildings in the U.S. with regard to energy usage.

[Businesses & Non Profits](#) - Energy efficiency is a great opportunity for businesses and non-profit organizations to reduce their energy costs. For example, the Green Lodging Michigan program assists hotels, motels, resorts, and bed and breakfasts to implement energy efficient and "green" cost saving practices and certifies facilities that have adopted "green" practices. The Green Venues Michigan is designed to encourage (and assist) facilities to adopt cost saving, green practices which conserve natural resources and prevent pollution. The Green Venues Michigan program was modeled after the Green Lodging Michigan program.

[Residential Energy Efficiency](#) - the Michigan Energy Office currently supports eight "Michigan Energy Demonstration Centers" located throughout the State. The Michigan Energy Demonstration Centers promote energy efficiency, renewable energy, green building and sustainable living solutions for Michigan residents and businesses.

[Public Buildings](#) - MEO has a number of program that support public buildings. For example, the Rebuild Michigan Program fosters partnerships that promote increased energy efficiency within a community. Partners may include local governments, schools, universities, businesses, non-profit organizations and public housing authorities. With assistance from state government and other partners each community can determine energy saving opportunities and goals and work to implement an energy action plan.

[Michigan Clean Cities Program](#) - Clean Cities is a locally-based government and industry partnership, coordinated by the U.S. Department of Energy (DOE) to expand the use of alternatives to gasoline and diesel fuel.

[Green Communities Program](#) - All Michigan communities are eligible to participate in the Michigan Municipal League's Green Communities Challenge, a program designed to reflect the governing body's commitment to adopt policies and programs of energy efficiency and conservation. Participating communities are promoted as a part of a nationally recognized program.

[Michigan Public Service Commission, Energy Efficiency](#) - Since PA 295 was signed into law in October of 2008, Energy Efficiency has become a top priority in Michigan! MPSC operates a number of programs to encourage energy efficiency among rate payers.

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Wind energy systems use the wind to turn a set of aerodynamic blades attached to an electric generator or turbine. When the wind blows, the blades turn, spinning a shaft that creates electricity in a generator. Wind turbines that are being manufactured have power ratings ranging from 250 to 2,000,000 watts (2 MW). For example, Traverse City Light and Power has a 600 kW (600,000 watts) wind generator that provides power for approximately 200 households. The National Renewable Energy Laboratory has estimated that Michigan has a potential for development of 16,560 MW. In February 2011, the Michigan Public Service Commission, first annual [Report on the Implementation of PA 295 Wind Energy Resource Zones](#).

The National Academy of Sciences has identified the following wind facility impacts of potential interest to state and local regulators: environmental, health, aesthetic, cultural, economic and fiscal, electromagnetic interference, and cumulative impacts (For more information please see: National Research Council, Environmental Impacts of Wind-Energy Projects, National Academy Press, 2007). Within this context, the Michigan Energy Office has compiled a variety of resources to assist communities and businesses in pursuing wind energy-related projects, including sample zoning guidelines, studies, incentive programs, and other guidance documents, below. The Environmental Law Institute report on State Enabling Legislation for Commercial-Scale Wind Power (see below) provides examples Model Wind Ordinances provided by ten different states. The 2007 Model Zoning Guidelines, published by the State Energy Office in 2007-09, are no longer active and have been superseded by actual examples of actual Wind Zoning ordinances in the state. The Michigan Energy Office recommends that local communities use the 2007 Model Zoning Guidelines only for historical purposes.

History of Wind Energy in Michigan

Currently, thirty-eight states have some commercial-scale wind facilities constructed and operating within their borders and fourteen of these have over 1,000 MW of constructed capacity. As one of these states, Michigan has had a long and distinguished history of involvement in the wind industry. For example, the [American Wind Energy Association](#) was formed in Detroit. From 1979 to 1993 Bay City based Gougeon Brothers Inc. - a maker of advanced epoxies - manufactured over 4,300 wood-and-epoxy wind-turbine blades and shipped them all over the United States. Some are still turning and generating power.

Founded in 2003 Mackinaw Power has played an integral role in the development of renewable energy in Michigan. Founder and President, Rich Vander Veen, led the efforts to develop the first privately financed wind power project in the Great Lakes. Today, the Mackinaw City Wind Project has contributed to the State of Michigan, Mackinaw City and the Northern Michigan Community in a variety of ways. The 1.8 MW Project has produced more than 31,536,000 kWh's of clean, renewable electricity for the area while providing lease payments, tax revenue to Mackinaw City and both community and economic development benefits to the community, region and state. Rich has also been a leader in the development of a Wind Farm in Gratiot County and has won accolades for his Community Engagement work. Today, Michigan houses some of the world's leading home-grown wind innovators in turbine design and materials (e.g., BASF, Energetx Composites, etc.), advanced manufacturing (e.g., Astraeus Wind Energy, DanoTek, Merrill Machine and Tool, etc.) and development (e.g., Northern Power).

Frequently Asked Questions

[10 Frequently Asked Questions and Answers about Wind Energy](#)

Michigan Utility Programs and Wind Energy

Public Act 295 has spawned wind-related activity in Michigan utilities. The following is a brief discussion of these programs:

[DTE Energy, Wind Energy](#) - DTE Energy provides information on the development and construction of DTE Energy utility-scale wind farms.

[Consumers Energy, Wind Power](#) - Consumers Energy provides customers and interested parties with information on their wind-related projects.

[Michigan Municipal Electric Association](#) - The Michigan Municipal Electric Association (MMEA) is Michigan's trade group for municipally owned electric utilities. Many of its members are currently involved in wind-energy projects.



Great Lakes Commission, Great Lakes Wind Collaborative, Best Practices for Wind Energy Development in the Great Lakes Region

The Great Lakes Commission, Great Lakes Wind Collaborative has conducted a thorough review of best practices in the Great Lakes region associated with wind zoning, permitting and siting. In July 2011, GLWC published this [important work](#).